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ABSTRACT

Program design can aid problem-solving or decision-making tasks faced by evaluators. It can be used to facilitate evaluation planning through the definition of program boundaries and the generation and focusing of evaluation questions. Further, it can provide evaluation information about theoretical, historical, and political contexts of a program; about program components requiring further planning; and about current program operations. The program design document provides program personnel with both graphic and narrative accounts of the various components of a program at multiple levels. Finally, program design provides an evaluation standard against which to compare program performance. Examples of ways in which developing a formal program design yields information that can be used as evaluation information are provided. An appendix contains diagrams of program designs of two public school programs and summaries of three design levels for a program for gifted students. There is an eight-item list of references.
(Author/SLD)

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Program Design

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Program Design as Program Evaluation

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Running Head: PROGRAM DESIGN AS PROGRAM EVALUATION

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Abstract

Program design can aid problem-solving or decision-making tasks faced by evaluators. It can be used to facilitate evaluation planning through the definition of program boundaries and the generation and focusing of evaluation questions. Further, it can provide evaluation information about theoretical, historical, and political contexts of a program, about program components requiring further planning, and about current program operations; Finally, program design provides an evaluation standard against which to compare program performance. Examples of ways in which developing a program design yields information that can be used as evaluation information are provided.

Program Design as Program Evaluation

Mess! I first heard the word used as a "technical" term in an introductory college physics course. It referred to the universe as humans understand it. The mess, however, existed in the human mind, not in the universe itself. I next heard the term with a similar usage in an introductory gifted education course. It referred to situations encountered by problem-solvers in which not even the problems to be solved were readily apparent. In the first instance, the scientific method was proposed as a means of organizing the human mind to better understand the universe. In the second instance, the creative problem solving model was advanced as a way to identify the problems and to generate solutions.

Evaluators often face "messes" when dealing with program evaluation projects. Neither the universe of a project nor the problems it is to solve are always well understood when evaluators begin their work. Evaluators thus use models or methods to guide their work in a complex environment. One such method is the development of a program design.

What Is A Program Design

Program design, along with the process of its development, is probably "the most important contribution of the Discrepancy Evaluation Model (DEM), and its most widely applied aspect" (Cichon, 1983, p. 3). Evaluators, in concert with program staff, develop a detailed description of a program as it should operate. This is accomplished through analysis of program documents and collaborative discussions between program staff, evaluators, and representatives of intended evaluation audiences.

There is not sufficient space here to describe the program design document, other than to say it provides program personnel with both graphic and narrative accounts of the various components of a program at multiple levels. Within each component, resource allocation, activities, and outcomes are delineated. Finally, relationships between components are shown. Sample pages from program designs written by the author are provided in Appendix A. Further information on the writing of a program design can be obtained from Cichon (1983), Provus (1971), and Yavorsky (1976).

Program Design Process

The process by which the program design is built is as important as the product itself. The process includes two stages, development and validation.

Development. The three basic sources for constructing program design are (a) program documents, (b) program people (to include only program staff or representatives of all people affected by the program, as determined by agreement between the client and the evaluator), and (c) the program setting (Yavorsky, 1976). Evaluators gather information from these sources through (a) document analysis, (b) meetings, (c) interviews, and (d) observations.

Documents are provided to the evaluator by the client. They can include initial program proposals and plans, grant applications, handbooks and manuals, memoranda, calendars, news articles, and so forth. Evaluators carefully analyze these documents to discover major program components, program subcomponents, resources, activities, and intended goals. Radzikowski (1975) suggests conducting this analysis before meeting with program staff. Thus,

evaluators are prepared to ask program personnel about specific program components, resources, activities, and goals. However, Provus (1971) suggests meeting with program staff first. This permits evaluators to analyze the documents in light of the program staff's current perceptions of the program.

While I have found both methods are effective in discovering information needed for writing a program design, the latter seems to be more efficient in terms of the actual time needed to analyze the information and to write the program design. Writing only from the original program documents ignores the particular stage of development the program is in and requires more rewrites of the program design.

The number of people to involve in the program design development depends on the amount of time available, the size of the program, and client and evaluator preferences. Steinmetz (1983) suggests the involvement of program managers, staff, and participants. For school-based programs, I have also found it useful to include representatives of important evaluation audiences such as school board members,

school district administrators, and parents. These should be included because of the political strength they have in decision making about school programs. Further, inclusion of various stakeholders can result in improved communication between groups and provide for important goal- and values-clarification (Hill & Hill, 1983; Steinmetz 1983).

All invited participants attend design meetings to give evaluators information needed to write a program design (Provus, 1971). The meetings can be structured in various ways. If one constituency forms a very large group or if the meeting group might include some members who tend to intimidate other members, such as might be the case if powerful evaluation audience representatives (e.g. school board members, superintendent) are present; it is helpful to divide the participants into smaller groups or, in some cases, hold separate meetings. This permits individuals the freedom they need to discuss the program openly. When participants are divided into small groups, they can often work more efficiently and without a great deal of evaluator supervision if they are given a specific set

of questions or tasks to deal with. This might include focusing on areas for which they have particular knowledge (such as having administrators describe budgetary resources, administrative functions, and relationships of the target program to other programs while the teachers are describing curriculum and instruction). The evaluator then facilitates in the small groups as needed. If all participants remain in one group, it is often acceptable to ask participants simply to describe what they do in the program.

In addition to the design meeting, it is often helpful to interview program administration and staff members individually. This creates the opportunity for even greater openness in discussing the program. These interviews should usually be held after document analysis and the initial design meeting. Program staff can then be very useful in clarifying and elaborating on information learned and issues raised to that point, particularly as it concerns any discovered differences in current program implementation and original intents.

Observations at the program site are useful for gaining information about program facilities, the

relationships between facilities and activities, and program components not fully described. Finding time for observations can be facilitated by scheduling meetings and interviews at program sites.

It is best to gather information to the point at which sources begin repeating themselves. The redundancy is a useful signal of comprehensive coverage. Once sufficient information is gained, the evaluator's task is to synthesize it into a program design (Provus, 1971).

Validation. According to Yavorsky (1976), "The evaluator is responsible for convening a design validation meeting where the design is explained in step-by-step fashion and objections or corrections can be voiced" (p. 45). At this meeting, or previously if it can be arranged, the participants should have the opportunity to read the program design carefully. Then evaluators should lead participants through a page-by-page analysis of the program design, noting changes as participants suggest and agree on them.

It is also useful to divide participants into smaller groups at this meeting, thus giving more people

the opportunity to voice concerns. However, at some point, all participants must come together to discuss the changes suggested in each of the smaller groups; the object being a consensus agreement on the changes needed to produce an accurate and comprehensive representation of the program (Yavorsky, 1976). It is sometimes necessary to hold one or two additional meetings to get final consensus on the validity of a program design. Once consensus is achieved the program design can be periodically modified to reflect changes in the program.

How Does Program Design Provide Evaluation Information?

There are essentially three major components to an evaluation project: (a) evaluation planning; (b) information gathering, analyzing, and reporting; and (c) evaluative decision-making. The program design document, as well as the process, can serve as an aid within each of these components through focusing the evaluation effort, yielding evaluation information, and facilitating decision-making.

Evaluation Planning

One important aspect of evaluation planning is focusing the evaluation so that it can be conducted within the constraints of available resources. By providing descriptions of program contexts, components, inputs, processes, and outputs (which focuses evaluators and clients on the crucial aspects of the program); a program design can aid in the evaluation planning task.

Evaluation boundaries. A program design provides both a visual and narrative description of what a program is and is not. As a result, program staff can focus on issues interior to the program and determine issues concerning relationships with other programs or the total school program. Further, as stated by Yavorsky (1976), "A design format, by exposing the functional dependencies between program parts, highlights those basic points in program operation which are of critical importance to the success of the undertaking as a whole" (p. 8). Thus, with a program design in place, the program staff can identify broad areas of evaluation concern within the program (Hill &

Hill, 1983). For example in an evaluation of a middle school program, it became apparent, through discussions for developing the program design, that what needed to be evaluated was not the middle school model, but the core team management aspect of the model and its relationship with other program components, as well as its possible transfer to other middle schools.

Evaluation questions. With areas of concern identified, evaluation questions can be generated from the described resources (e.g., Were resources actually expended as stated?), activities (e.g., Was the activity implemented as described?), or outcomes (e.g., Was the intended objective achieved?) (Cichon, 1983; Hill & Hill, 1983). With multiple components possible within any one area of evaluation concern, it is possible to generate more evaluation questions than can be either manageable or meaningful. Therefore, it is necessary to set priorities to focus the evaluation effort further (Cichon, 1983; Yavorsky, 1976).

Cichon (1983) generates potential questions only from outcome statements because many resource and activity statements are reflected as outcomes at

another level of the design. Then he uses a scale by which program managers rate each of the questions according to a utilization focus. His criteria are; (a) would it help make a program decision, (b) was it required by law or by the funding agency, and (c) would it provide information for another program? He discusses the compilation of results with program managers at a meeting to build consensus on evaluator and staff priorities.

Yavorsky (1976) suggests the need for focusing on high priority questions as well. Her criteria consist of (a) components of central functional importance, (b) problematic areas, (c) direct concerns of external evaluation audiences, (d) direct concerns of internal evaluation audiences, and (e) information needed soon.

There are obvious relationships in both sets of criteria. The point is that program design can be useful in generating evaluation questions that the staff can use to develop priorities for program evaluation. For example, if outcome statements indicated students will become proficient at creative, productive and critical thinking, then evaluation

questions can be generated to focus on the degree to which this proficiency was achieved.

Evaluation Implementation

Evaluations are implemented to gather, analyze, and report information to help program personnel make decisions. Program design provides important evaluation information for decision-makers about program contexts, inadequacies, and operations.

Program contexts. All programs exist in some historical, political, and theoretical contexts. When evaluators, program staff, and representatives of important evaluation audiences are brought together to describe a program, they frequently uncover new information about their beliefs, practices, and intentions for the program. For example, in a series of design meetings, program staff learned of the financial constraints faced by the board in funding new programs at the same time negotiations for teacher salary increases were being conducted. They also learned that the way each teacher was implementing the program made it look like three separate programs.

In another case, middle school principals expressed interest in receiving a copy of the program design of a middle school concept to use as a guide in implementing the concept at their schools because the concept was the trend in their state. In the same setting, teachers discovered that the basic attitude of flexibility built into the middle school concept was not shared equally because teachers at higher grade levels had to be more set in their schedules due to the greater number of itinerant teachers involved in teaching student elective courses at those grade levels.

Program inadequacies. Steinmetz (1983) contends that "having a complete design available literally points out trouble spots" (p. 95) in the program. According to Yavorsky (1976), this occurs in at least four ways; (a) design validity questions are unresolved, (b) components are still undergoing development or experimentation, (c) components have a history of problems, and (d) staff markedly disagrees on a design component. For example, in design validation meetings for a gifted program, there was

disagreement on the flow of the identification process. A follow-up inspection of program documents showed they contained inconsistent and confusing procedures for conducting identification. At the same site, in developing design statements of the curricular subcomponents, as requested by program administration, teachers discovered how incomplete their planning of the science curriculum was, indicating they hadn't thought about what their intended outcomes were and how they intended to achieve them.

Program operations. The program design documents program operations. It is a dynamic document that is modified as the program is improved. A series of program designs thus provides a history of the operation of the program. For example, a school board member and some district administrators first heard of the development of the advanced curriculum for gifted students in their district at a design meeting in the program's third year.

In another location, the development of core team management in the middle school setting was traced as the program design was modified from year to year based

on the teachers' focusing on a new subcomponent each year. In the first year, the recognition program for honoring achieving students was the major focus; the following year, discipline was the focus. Subsequent years were to focus on curriculum planning and counseling. As is apparent from these examples, through the process of building a program design, program staff can identify areas of the program needing improvement and can plan future program development efforts.

Evaluative Decision-Making

Imbedded in the concept of evaluation is the idea of some judgement or decision to be made based on available information against some standard. According to Yavorsky (1976) a standard is "some implicit idea of intent or expectation, or model of excellence . . . derived from experience, knowledge, and values" (p.3). She further states that "a program design's most basic contribution to the evaluation process is . . . its description of program standards in a form which makes them readily subject to evaluation" (p. 7). Thus, once a program design is developed and validated, it can be

compared to actual program practice. Program staff can then determine either to change the practice or to change the standard (i.e., the program design).

For example, after program staff agreed on the description of the identification component of a gifted program, actual practices of teachers in identifying gifted students were investigated. When it was discovered that teachers, particularly at schools serving students with low socio-economic status (SES), were not using specified practices or were using practices outside those specified; the program coordinator determined the need to modify the design to include practices favorable to low SES students and to provide all teachers with additional training.

Conclusion

One strategy with many potential uses in the process of program evaluation is the development of a formal program design. Having a program design focuses evaluators and clients on the crucial components and relationships within a program. When appropriately applied, program design can facilitate evaluation planning, provide evaluation information, and provide a

standard for evaluative decision-making through face-to-face interactions between evaluators, program administrators and staff, and representatives of important evaluation audiences.

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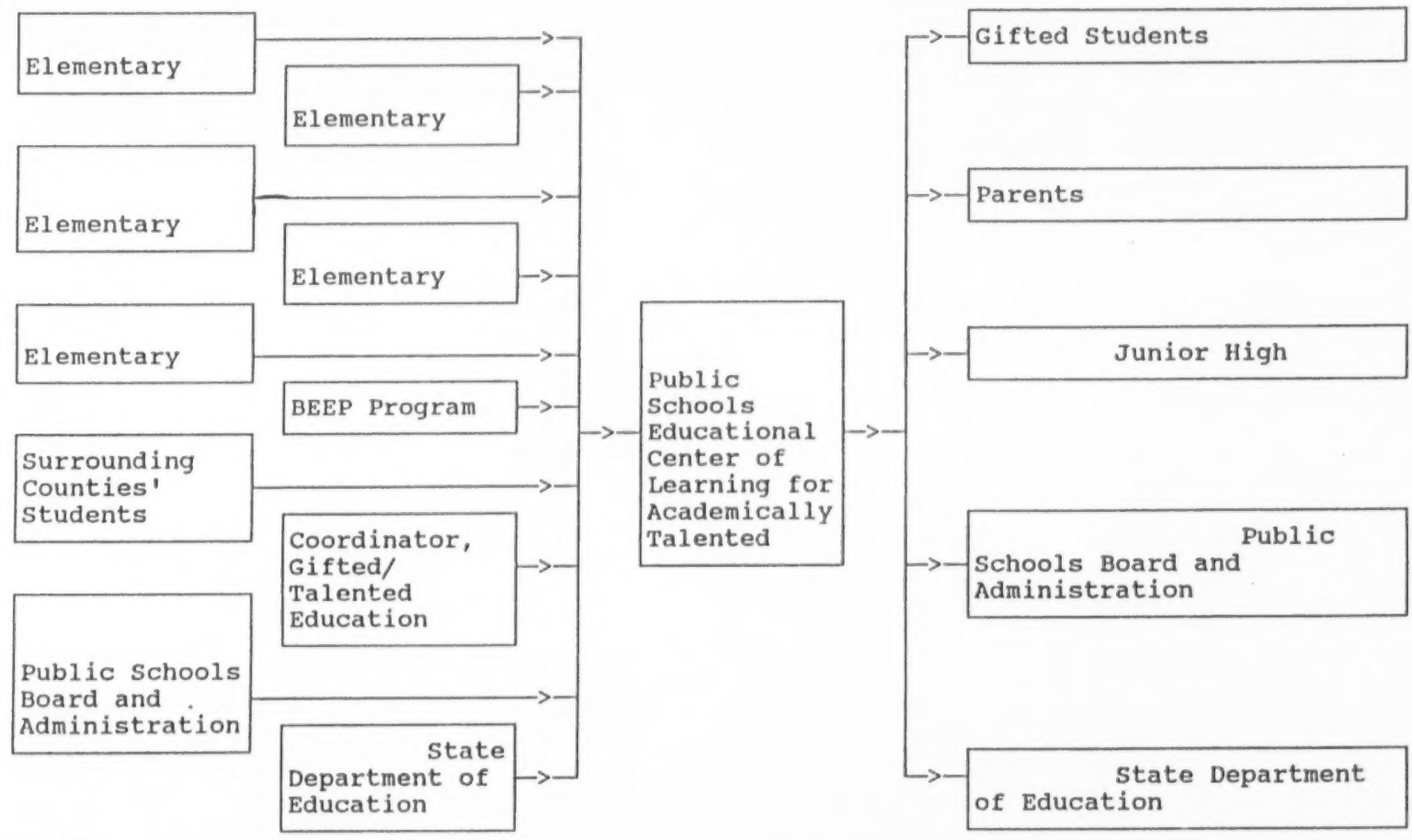
Appendix

PUBLIC SCHOOLS ECLAT PROGRAM

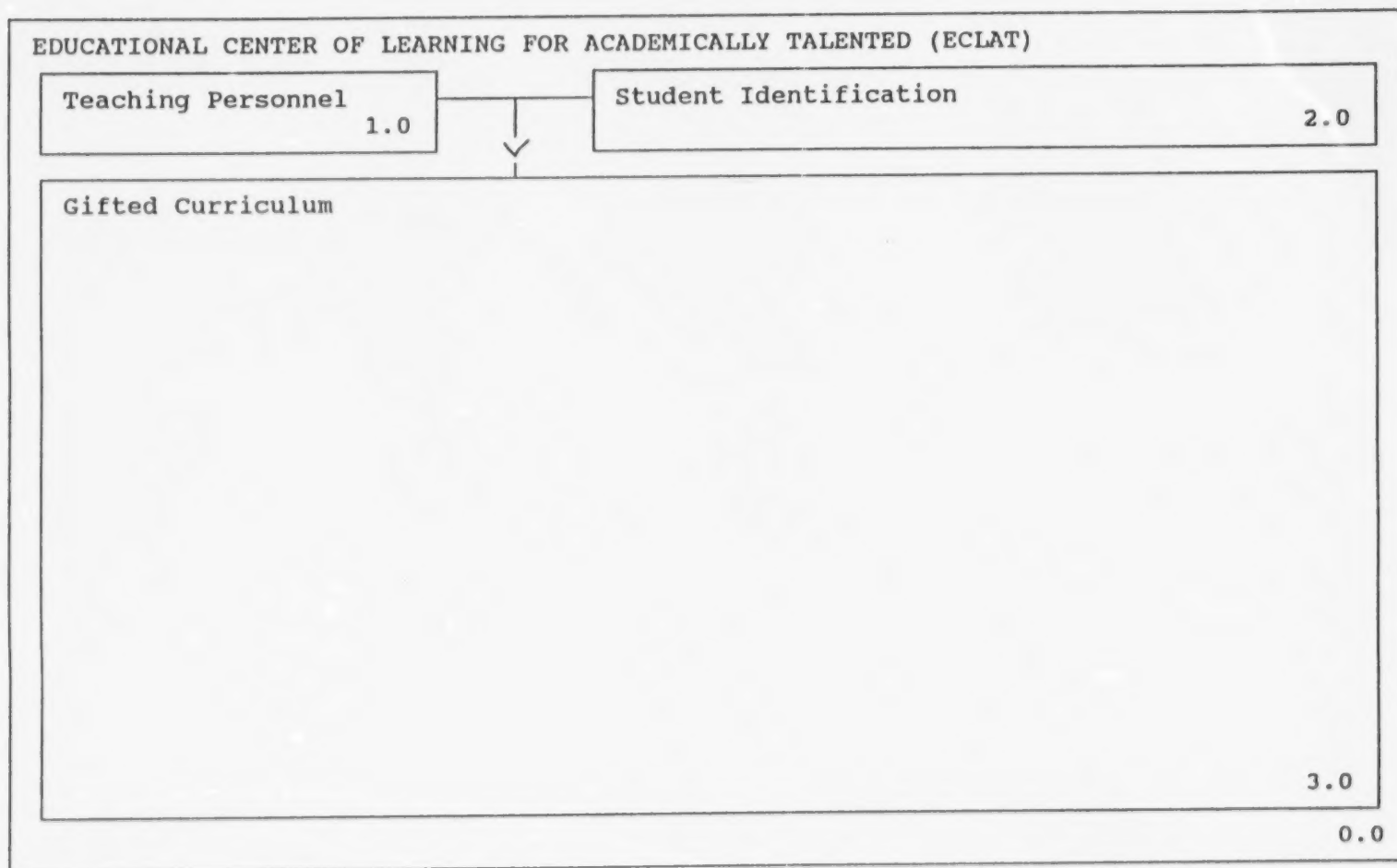
NETWORK LEVEL I

RESOURCE AGENCIES

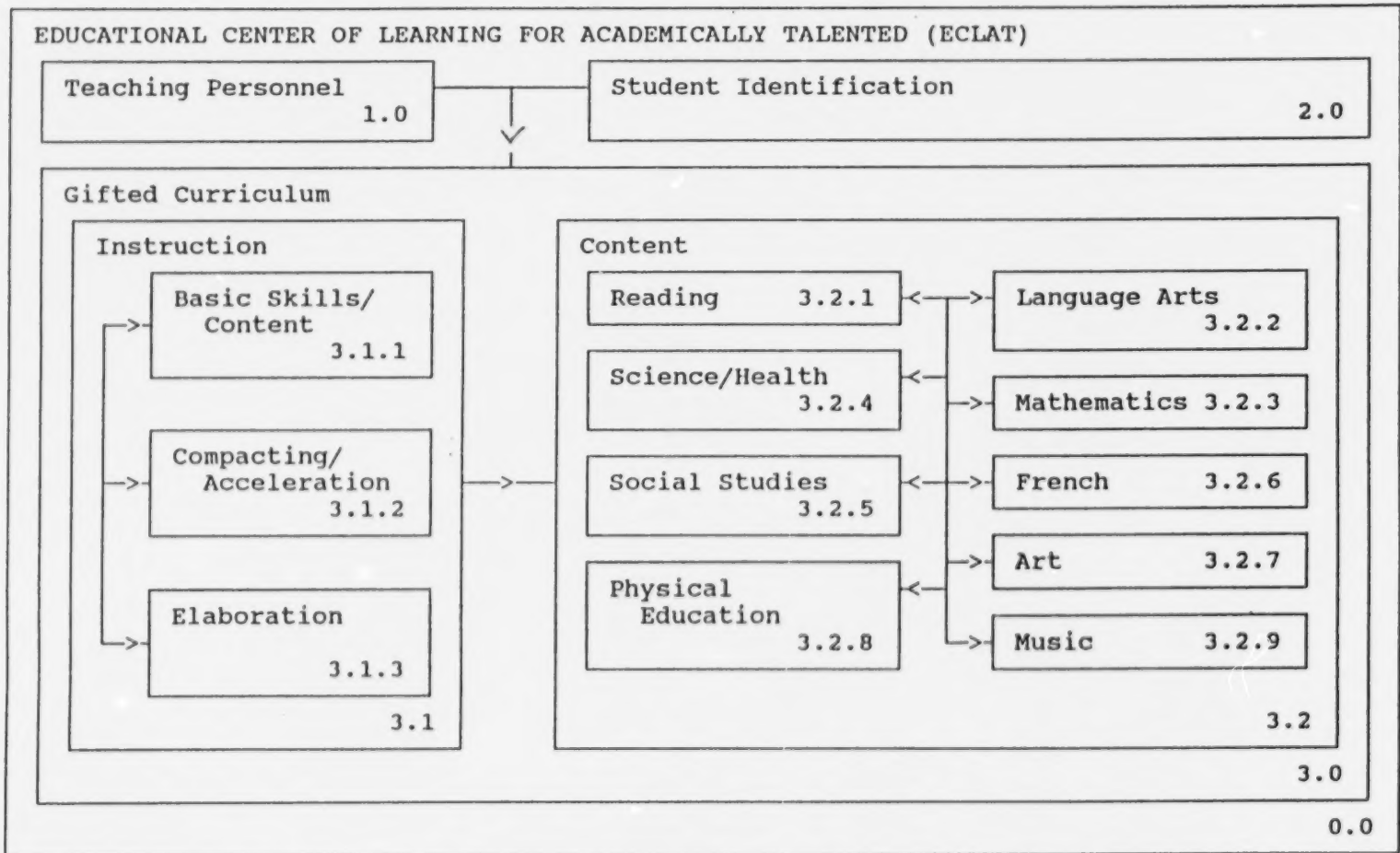
CONSUMER AGENCIES



PUBLIC SCHOOLS ECLAT PROGRAM
NETWORK LEVEL II



PUBLIC SCHOOLS ECLAT PROGRAM
NETWORK LEVEL III



PUBLIC SCHOOLS CENTER-BASED GIFTED PROGRAM
DESIGN LEVEL I

Component Name : Center-based Gifted Program
Component Number: 0.0

INPUT	PROCESS	OUTPUT
Funding:	The County	Teachers who
County	Public Schools Center-	are
Public Schools	Based Gifted Program (CBG)	intensively
Salaries : \$98240	receives students	trained in
Training : 1000	identified in	working with
Materials/	County elementary schools	gifted
Supplies: 23000	which are geographically	students.
Transport : 46000	near to the Center-Based	
	school (	Students
Administration:	Elementary).	identified
County		based on
Public Schools	With parental permission,	county
Executive	students are placed in the	criteria and
Director,	Center-Based Program with	placed by
Elementary	teachers who have	parents.
Education	intensive training in	
Director, Planning	working with gifted	Differen-
and Evaluation	students. The program	tiated
Gifted Program	provides a total learning	education
Specialist	environment using richly	which is
Elementary	exploratory, problem-	effective for
School	solving, creative,	identified
Principal	personal instruction; with	gifted
Assistant	challenging,	students.
Principal	individualized, enriched,	
	accelerated, in-depth	Parental
Staff:	curriculum which deals	awareness of
CBG	with the students'	program goals
4 Teachers of the	intellectual and affective	and gifted
Gifted	development; seeking to	child needs.
2/5 Foreign	maximize individual	
Language Teacher	potentialities, thereby	Administra-
Elementary	enabling the student to	tive support
Resource Personnel	realize his or her	for gifted
Art Teacher	contribution to self and	education.
Phys. Ed.	society.	
Teacher		
Music Teacher	For further information,	
Librarian	see Design Level II, pages	
Speech Teacher	9-19.	
Psychologist		
Evaluation:		
County		
Gifted Evaluation		
Committee (14		

COUNTY PUBLIC SCHOOLS CENTER-BASED GIFTED PROGRAM
DESIGN LEVEL II

Component Name : Teacher Training and Selection
Component Number: 1.0

INPUT

Administration:

County
Public Schools
Executive
Director,
Elementary
Education
Gifted Program
Specialist
Elementary
School
Principal
Assistant
Principal

Receptors:

Interviewees, CBG
Teacher
4 CBG Teachers
selected
Interviewees,
Foreign Language
Teacher
2/5 Foreign
Language Teacher
selected

Facilities:

Office Space
Conference Room

Documents:

A Proposal for
Gifted Education
in Chesterfield
County Elementary
Schools and
Follow-up
Memoranda
Personnel Files
General Interview
Form

County
Public Schools
Gifted Program

PROCESS

Teachers in
County have received
extensive training in the
characteristics and needs
of the gifted,
identification, and
techniques and materials
for differentiating
instruction and maximizing
student potential. This
has been accomplished
through informal sharing
of information from
conferences, workshops,
institutes, and other
professional meetings
attended by the gifted
program specialist; formal
inservice classes, and a
college-level course
taught in conjunction with
the University of
. In addition,
special effort is made
each year to bring in an
expert to work with
teachers. Also, system-
wide training in specific
programs, such as Talents
Unlimited and Junior Great
Books, has been provided.
This produced a pool of
teachers trained in gifted
education who could apply
for CBG positions.

OUTPUT

Teachers of
Center-Based
gifted who
are qualified
to teach the
gifted.

Teachers of
Center-Based
gifted who
are
experienced
in gifted
education.

Teachers of
Center-Based
gifted who
are sensitive
to and
understanding
of the
characteris-
tics and
needs of the
gifted.

Teachers of
Center-Based
gifted who
are capable
of
implementing
a creative
program for
gifted
students.

COUNTY PUBLIC SCHOOLS CENTER-BASED GIFTED PROGRAM
DESIGN LEVEL III

Component Name : Placement Committee
Component Number: 2.1

INPUT**Staff:**

Building
Administrator in
Charge of
Identification
Teacher of the
Gifted Currently
Teaching the Child
Other Teachers of
the Gifted
Psychologist or
Other Person Doing
the Testing
(Optional)

Receptors:

Potentially Gifted
Students
Identified Gifted
Students
Parents

Documents:

Procedural Handbook
for Identification
of the
Academically
Talented (Revised
October 1986)

PROCESS

The Placement Committee at each school oversees the identification process at its school from referral to evaluation.

The committee is made up of a building administrator and teachers of the gifted. A psychologist or other person doing the testing is an optional member.

At least one member of the committee should be currently teaching any child being considered.

A minimum of five persons must be on the committee.

OUTPUT

A consistent process of identification of gifted students.

COUNTY PUBLIC SCHOOLS CENTER-BASED GIFTED PROGRAM
DESIGN LEVEL IV

Component Name : Math
Component Number: 3.2.1

INPUT	PROCESS	OUTPUT
Staff: CBG Teachers of the Gifted	Students in relatively small classes are taught math using the Comprehensive School Math Program (CSMP) which emphasizes problem- solving. This is supplemented with	Students with basic knowledge of math according to grade-level curriculum.
Receptors: CBG Students	materials for Houghton- Mifflin math texts for the same or higher grade levels.	Students with accelerated knowledge of math according to ability level.
Facilities: Classrooms Library Computer Lab	In addition, the gifted curriculum units under Symbolics: Math are taught as follows:	Students with enriched knowledge of math according to interests and needs.
Texts: CSMP Houghton-Mifflin County Gifted Curriculum Units	3rd--Measurement Systems Math in Sports Geo-Meters 4th--Logic and Strategies in Problem-Solving Geometry Concepts 5th--Computer Literacy Number Theories of Great Mathematicians.	
Instructional Equipment, Supplemental Texts, Materials, and Supplies		
Preconditions: Expertise in managing CSMP		
	Testing is done in spring of fifth grade to verify preparation for the middle school math program.	